Gibney (V. P.)

Peri-Nephritic Abscess in Children, with a Report of Nine Cases.

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BY

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PERI-NEPHRITIC ABSCESS IN CHILDREN, WITH A REPORT OF NINE CASES.

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Under the impression that the subject which forms the caption of my paper may not be uninteresting to those chiefly interested in diseases of children, as well as to orthopædists, I gladly avail myself of the opportunity offered me for presenting the histories of the following nine cases of peri-nephritis, seven of which have terminated in abscess, and two in resolution. It being the rule for this affection to terminate in suppuration, I have chosen the above title, and shall class all my cases, for convenience' sake, under that head.

While Rayer, Trousseau, Bowditch, Rosenstein, and Ebstein have written ably on peri-nephritis and peri-nephritic abscess, only one of these observers (our own countryman) has met with the disease in children. All have dealt with the subject as related to adult life, and consequently have had no occasion, as a rule, to differentiate this from incipient caries of the spine or the second stage of morbus coxarius. The interest in joint diseases, I am sure, is extending; and I feel that if I can contribute anything to their diagnosis even, I shall be abundantly recompensed. The difficulty of a differential diagnosis is not an imaginary one, as many of our brilliant lights might intimate. I have seen cases in which the exceedingly clever

failed to make a correct diagnosis, and hence I feel that I may be pardoned for committing errors myself. That which galls most bitterly is the fact that, in at least one-half of my own cases, I failed to diagnosticate that which subsequent developments proved to be the true lesion.

At this point I am tempted to digress, and devote a paragraph to that charity of opinion which a study of the cases herein reported has brought more clearly to my view. We are so prone—arrogant creatures that we are—in the examination of a patient, to impute ignorance and stupidity to the doctor last in attendance, that we wonder how it was possible to overlook a disease marked by such indubitable signs; forgetting all the while, that time, more or less long, has elapsed since our brother saw the case; that in the interval a mole-hill may have grown into a mountain; that the testimony given by an ignorant mother may vary according to circumstances, according to the leading questions propounded. We forget that every prudent physician meets with cases which compel him to reserve his diagnosis until the clearing up of certain obscure symptoms. This by the way.

With reference to the rarity of the disease in adult life, authors are not unanimous. Trousseau,[1] in a classical chapter on the subject, regards it as relatively rare; stating, furthermore, that the nature of the cases is liable to escape notice. Niemeyer[2] regards it as a rare affection. Flint, in the fourth edition of his work on practice, devotes three-fourths of a page to an analysis of three cases reported by Bowditch.[3] A few of the works on surgery give a passing notice. In referring to ten works on diseases of children, I find no space given to its consideration—in fact, scarcely a reference. In a few of the papers on the subject, as collected from current literature, two or three cases are reported as occurring in children. In twenty-one cases collected by Halle,[4] in 1833, he found one in a patient sixteen years of age. Rosenstein,[5] writing in 1870, says that, up to the present time, peri-nephritis has not been

[1] Clin. Medicine, Eng. Translation, vol. ii., p. 891.
[2] Practical Medicine, vol. ii., p. 40.
[3] Bost. Med. and Surg. Journal, July 9, 1868.
[4] Des Phlegmons Peri-nephrétiques, Thèse soutenue le Août, 1863.
[5] Nierenkrankheiten, 2, Auflage, 1870, s. 268.

observed in childhood. During the same year, Bowditch,[1] of Boston, reports seven new cases and a resumé of three old ones, and among the seven are two occurring in children. In Ziemssen's "Cyclopædia of Practical Medicine," Ebstein,[2] writing as late as 1875, seems to have completely overlooked Dr. Bowditch's excellent article, and makes the statement that only one case of peri-nephritis in childhood—Löb's[3] case—has been reported. I am unable to find any since that publication, and the number on record is only three, one of which may not have been primitive. Of course I exclude all those of a secondary nature.

A brief reference to the anatomy of the parts will refresh the memory, and help us better to understand the deformities that may arise, the course a quantity of pus may take, and the pathological changes incident to the neighboring parts. The kidney lies imbedded in several layers of cellulo-adipose tissue, which are in relation anteriorly with the ascending or descending colon, posteriorly with the crura of the diaphragm, and continuous with the cellular tissue of all the organs in this region. The most important relation, however, is with the iliac fascia investing the psoas and iliacus muscles, and the anterior lamella of the aponeurosis of the transversalis. On the right side, the right lobe of the liver posteriorly impinges upon the peri-nephritic tissue, and the proximity of the gall-bladder serves to anatomically explain certain icteric symptoms observed in some cases. On the left side, the cardiac extremity of the stomach, the lower end of the spleen, and a portion of the pancreas participate in this relationship. Mr. Moxon, in a clinical lecture reported in the *Lancet*,[4] calls especial attention to the contiguity of the sheaths of the vena cava and aorta, and he regards the flatulency and irregular constipation, so marked in the case before the class, as symptoms of paralysis of the abdominal sympathetic, caused by an extension of the thickening process to the sheaths in question.

Before proceeding to the etiology, symptomatology, *et cætera*, I shall present the histories of my cases, an analysis of which

[1] First Med. and Surg. Report of the Boston City Hospital, 1870.
[2] Band, xi., s. 44.
[3] Jahrb. f., Kinderheilkunde Neue Folge, viii., s. 197.
[4] Lancet, vol. 1, 1875, p. 602.

will enable me the better to treat of these divisions of the subject.

CASE I.—M. O'B., female, æt. 8 years, was admitted to the hospital, July 16, 1873, with the following history: Health very good prior to June 1st; shortly thereafter, without any known cause, she began to complain of pain in the left knee, subsequently referred to the hip, where the pain became very acute; rapid emaciation, with frequent febrile exacerbations, marked the course of the disease up to the date of admission, when her expression was indicative of great suffering, and the utmost care in preparing her for examination failed to avert the piercing cries which the least motion would occasion. The tongue was furred, pulse 150, temperature high, though not measured with the thermometer. To stand or walk, or even lie with comfort, was out of the question. There was considerable tympanites and undue prominence of the superficial abdominal veins; enormous enlargement of left gluteal region, extending upward beyond the crest of the ilium, normal contour completely effaced; integumental covering elevated in temperature, while palpation thereover gave distinct fluctuation. The thigh was semiflexed on pelvis, and the least attempt at extension gave such pain that further examination had to be discontinued. A diagnosis of acute synovitis of the hip-joint was made. For three days the child refused food, and the pain was relieved by opiates. On the fourth day, the appetite returned, and she ate ravenously. The abscess was not opened, but continued to enlarge, burrowing along the spinal column and down the thigh, relief being afforded August 7th by a spontaneous opening. The discharge of fetid pus was amazingly profuse. Tonics and stimulants were administered unsparingly. August 13th: the abscess threatened a spontaneous opening in the lumbar region; compresses were applied, and succeeded in forcing the pus through the lower opening. August 24th: the discharge had greatly decreased, and the child was going about the ward improving daily. August 26th: fell, rupturing a small artery near the opening of the abscess, and about one half-pint of blood was lost before I could reach the patient. A compress quickly checked all hæmorrhage, and there was no recurrence. From this date the purulent discharge increased, draining from a large sac over the sacrum. During the month of September at least one

pint of pus daily flowed from two small openings. In October it became less profuse, and toward the close of November ceased altogether. She was considered well; the limb was in normal position, and there was no impediment to motion in any direction. We realized our error in diagnosis, and felt convinced that the abscess must have originated near the origin of the psoas muscle, making it peri-nephritic. The urine was examined once shortly after admission, and nothing found except an excess of urates. The patient remained six weeks longer, that convalescence might proceed unmolested. Her recovery was perfect.

Case II.—T. A., male, æt. 1½ years, a recent arrival from Denmark, was brought to the out-door department, March 12th, 1874, presenting a mere fulness in the right lumbar space. The thigh was flexed on pelvis at an angle a little less than 90°, and extension was painful. There was a marked elevation of temperature, a hectic flush, and other signs of some acute disease. The liver was of normal size, abdomen large, spinal column presented no angular prominence. The excessive irritability of the child made the testimony derived from any localized tenderness valueless, and prevented a satisfactory examination. Aided by an interpreter, I learned from the mother that four weeks prior to this visit the patient enjoyed perfect health; that without any apparent cause he became very cross, and had daily febrile exacerbations, refused food, and had been losing flesh. She had first noticed the lumbar enlargement three weeks after the first signs of indisposition. From the history, then, and the signs already observed, I diagnosticated a deep-seated lumbar abscess, unconnected with carious vertebræ. The urine was not examined. Dr. Knight confirmed my diagnosis, and suggested measures to promote resolution. Within a week the little patient returned, and the tumor filled the whole costo-iliac space, pointing on a line with axilla and crest of ilium. In my haste to make an incision I neglected to notice whether the flexion of the thigh had increased or diminished. A small incision gave exit to about one pint of pus not particularly offensive. Stimulants and tonics were ordered. At the next visit it was evident that great relief had been afforded, and that improvement had energetically commenced. In a month's time all discharge had ceased, and the patient was discharged cured.

CASE III.—M. T., female, æt. 6 years, admitted to the hospital July 21st, 1874. The history, as obtained from an intelligent mother, represents the child as in excellent health two weeks before date of application. She complained first of pain in the right lumbar region, and very soon afterwards it was referred to the neighborhood of the hip. A marked limp was observed, and the thigh was flexed. These symptoms were progressive. In looking over the history as recorded, I find no mention made of any cause, or of the occurrence of any fever, during the two weeks just mentioned. On entry, her general appearance was good, the tongue pale and flabby, the vital signs about normal. While standing, the body was inclined forward and to the right; while walking, the limp was marked. Fulness could be detected in lumbar region, not especially confined to one or the other side; there was, however, great tenderness on pressure in the right loin; while the thigh was semi-flexed, there was no perceptible rotation outward, complete extension impossible, no pain on flexion beyond an angle of 90°; absence of tenderness in groin and over trochanter. The diagnosis was reserved, and the treatment was expectant. September 8th: contraction of psoas less, while there is a suspicious fulness above the crest of right ilium, palpation over which gives no satisfactory fluctuation. Tr. iodine externally, and the roller applied with cotton batting as compress. By October 9th, the fulness had entirely disappeared; not a shade of difference could be detected in the appearance of the loins, hips, or thighs; the child stood erect, and walked without a limp. Precautionally, she was retained until December 19th, when an examination, pursuant to discharge, failed to detect any disease or deformity.

CASE IV.—M. H., female, æt. 9 years, was seen by Dr. Knight, June 11, 1875. The general appearance indicated prostration from some acute disease. When placed on the sofa the thighs were flexed on abdomen, and an attempt to remove the clothing failed, so acute the pain. The mother endeavored to hold the little sufferer as nearly erect as possible, in order that a view of the spinal column and nates might be obtained, and for a few moments this was tolerated. In this position no deviation of the spinal column in any direction was observed; the natis of right side was flattened, while the thigh was strongly

flexed. Caries of the spine and hip-joint disease were excluded. Further examination was postponed. Tonics and extra diet were ordered, and Dr. Josselyn, one of my associates in the hospital, was requested to visit the patient at the house, her condition making attendance as an outdoor patient impracticable. This was during my absence from the city, but Dr. J. has kindly furnished me with full notes of the case. Her general health was never extra, though comparatively good until three months ago, when she began to walk lame, failing to bring the heel of right foot to the floor. Coincident with this there was pain in the right inguinal region. No exciting cause could be obtained. Two physicians were called in, morbus coxarius was diagnosticated, and a Buck's extension applied. No improvement followed, but the high fever, emaciation, and acute pain became alarming. On the third day following her visit to the hospital, Dr. J. discovered a circumscribed swelling just to the right of the lumbar vertebræ, but could not detect any fluctuation. Within a few days a valvular incision was made, through which a large quantity of pure fetorless pus was evacuated. The hectic subsided almost immediately. By the next day the wound had healed by first intention. Improvement continued until the middle of July, when the hectic returned. On the 21st a free incision was made by Dr. Harlan, to whose care the case had been finally committed. In less than three weeks she was cured. I saw the child quite recently, February 12, 1876, and found her in perfect health. There had been no relapse.

Case V.—B. J., male, æt. 3½ years, was brought for treatment, June 21, 1875. The father bore him in his arms with the utmost care, a momentary neglect of which would cause the little fellow to shriek piteously. On removing all the clothing, the body was found emaciated, hot to the touch, the spinal column preternaturally immobile, though no angular prominence or incurvation could be detected. No tenderness over the spinous processes. He was induced to stand a few moments, and as he stood the right thigh was advanced, the body bent forward, and the hands rested on the knees. Examination of the thigh revealed nothing save contraction of the psoas and pain on extension. There was apparent hyperæsthesia over the right side of the body, and I could not use sufficient pressure

to detect any deep-seated tumefaction; none existed superficially. History briefly: good health prior to April 1st; shortly thereafter an acute bronchitis, convalescence from which began in the middle of May; an apparent relapse toward the latter part of same month, the prominent symptoms being excessive peevishness, progressive loss of flesh, moderate jaundice, fever remittent in character, pain referred to chest and back, a disposition when standing to stoop forward and rest hands on knees, at times complaining of sudden sharp pain, which induces him to run to the nearest chair or sofa, preferably the mother's lap; when in bed, to assume the prone position; bowels constipated; nothing abnormal perceived in the gross appearances of the urine. In the early part of June there was semiflexion of the thigh and a marked limp. Such was his history, and I confess my inability to reach an absolute diagnosis. Morbus coxarius I excluded, and while I gravely doubted the existence of caries of the vertebræ, as a precaution I ordered a spinal brace, and directed the mother to report within a few days should any new symptoms develop. Accordingly, on June 28th she returned, reporting a deposit of sediment in the urine after it had stood awhile, an increase of the acuteness of the pain, rendering him delirious at night, an exaggeration of the febrile disturbance. By some oversight I failed to examine the urine, regarding the sediment as most likely urates. July 1st the mother observed a swelling above the crest of right ilium, and at her visit two days later I found a well-marked tumor three inches to the right of the lumbar spine, fluctuating and pointing midway between crest of ilium and last rib; the thigh could be easily extended. The brace had not been completed, and as there existed no longer doubt as to the diagnosis, I referred, by courtesy, the case back to the family physician, who made an incision giving exit to a large quantity of yellowish offensive pus. He did not explore the cavity. The patient began to improve forthwith, and on July 24th returned to me for examination. He stood erect and walked with ease; general condition had greatly improved; the wound had nearly closed, only a few drops of sero-pus transuded. A few days later he returned, and the wound had closed. Discharged cured. February 5, 1876, at my request, he was brought to the hospital, and the only mark of recogni-

tion was a small cicatrix in the right costo-iliac depression. I examined him thoroughly, and found no lesion whatever.

Case VI. was kindly communicated by Dr. W. G. Russell, of Brooklyn, the physician in conjunction with whom I treated the preceding case.

"July 29th, 1875, saw Mary Peach, æt. two and a half years, whose parents reported that for two or three weeks she had been less playful than usual, had lost her appetite, had lost flesh, walked lame, and for some days had been unable to walk at all. I found her complexion very sallow, the right thigh flexed. A few days subsequently a swelling developed above the crest of the right ilium. As soon as I could get fluctuation I made the incision, and was amazed at the quantity of pus evacuated. The child regained its appetite at once, and made a good recovery. I learned from the parents that the child almost from birth had been in the habit of drinking lager beer daily."

Case VII.—E. J., female, æt. six years, presented at the outdoor department, Aug. 12th, 1875. Personal and family history good. On July 4th she gave the first symptom of any indisposition whatever. A loss of appetite was first noticed; her rest that night, and subsequent nights, was disturbed, great pain in loin. No history of any fall, strain, or injury, that could be construed into an exciting cause. Within a few days high fever came on, thirst was great, constipation obstinate. These symptoms increased in severity. No position could be endured for a short time even with comfort. The pain became intense, and to secure relief she stood with the right lumbar region arched outward. During the second week a tumefaction appeared in this region, slowly enlarging, and deceiving the attending physician, who imagined that he had a case of caries of the spine, and sent it to the hospital for treatment. The fluctuating tumor, extreme suffering, absence of spinal deformity, general appearance of the patient, and duration of illness, enabled me to arrive at a correct diagnosis. Within a few days I called at the house, and, having ascertained the size of the tumor to be five and one-half inches vertically, and eight and one-half inches transversely, made an incision, giving vent to a quart of thick, yellowish pus. The sac was not explored. I left in charge my friend Dr. Harlan, who had

occasion, three days subsequently, to enlarge the opening. The internal medication consisted of iron, quinine, and cod-liver oil. Sept. 1st, all discharge had ceased, and the opening had closed. Within three weeks the cure was complete. Feb. 25th, 1876, one of my associates in the hospital, Dr. Crenshaw, visited the child, and learned that no relapse had occurred, the general health had been excellent, and he could find no trace of disease present.

CASE VIII.—M. E. O'B., female, æt. ten years, was referred to the hospital by Dr. Partridge, Aug. 30th, 1875. Five weeks prior to this date her health had been considered perfect. Began shortly afterwards to complain of pains indefinitely located, and to manifest general malaise. The suffering became distressing; and, at the end of the first week, high fever, location of pain in abdomen, flexion of left thigh and progressive emaciation were prominent symptoms. Hip-joint disease and caries of the spine were diagnosticated by two or three clinical teachers. Finally, on her appearance at the out-door department, her condition was as follows: Totally unable to stand or even assume a tolerable sitting posture; body poorly nourished and covered with sudamina, a uniform posterior curvature of the spinal column from the tenth dorsal to the third lumbar vertebræ when attempting to stand, at the same time flexion of thigh at an angle of 135°. Along the left vertebral groove, a ridge-like prominence, tender to pressure, non-fluctuating and shading off into the abdominal walls; pressure over psoas, and extension gave tenderness. My diagnosis was deep-seated, acute lumbar abscess, and a nourishing diet was enjoined, Wyeth's preparation of beef wine and iron ordered; while, as an external application, a frequent change of cloths saturated with cold water advised, Sept. 11th. Since last visit the pain has been excruciating, causing delirium by night and great nervous prostration by day. There has also been considerable alopecia. The ridge-like prominence has become more circumscribed, and now we have a distinct tumor with doubtful fluctuation; spasm of psoas not so great. My first impulse was to make a free incision; but Dr. Knight, the surgeon in charge, favored a still further effort to promote resolution, especially as the existence of fluctuation was uncertain, and an evaporating lotion was ordered. The tumor two weeks later was very large, filling the

whole lumbar space, and at one point the integument was thin, almost to transparency. Why not incise immediately? One of the hospital internes had differed with me as to the diagnosis, and at the time of this visit he was in the country. I was anxious to convict him of his error by having him see the incision; and as the suffering had greatly diminished, I directed the mother to bring the patient again in two days. She called at the end of a week and my tumor was on the decrease! while the patient was convalescing. I could get no history of diarrhœa, or of presence of purulent material in the stools; a cough had been present, and the mother on cross-examination admitted that the child "spat up something." This latter evidence was obtained, however, at a later date, after the disappearance of the tumor; and on auscultation I detected coarse mucous râles at the base of the left lung.

Well, our patient made a good recovery and no pus was evacuated, unless, perchance, it had forced its way through the diaphragm, the pleura, and the lung, per os. That the fluctuating tumor existed, others will gladly testify. Nov. 2d, I saw her, and no disease or deformity could be discerned. I had the child call on me again Feb. 2d, of present year, and the health was still excellent.

Case IX.—H. M., æt. two years, a fairly nourished boy, was seen first at the hospital Dec. 16th, 1875. His condition, so far as influenced by suffering, was very like that of many of the cases already described. It required the whole family and an aunt to bring him, and the combined force to undress him, so illy did he bear any rough handling. On examination, I found a partially-filled abscess over the left vertebral groove near the sacro-iliac junction, extending toward the left about four or five inches; two small punctured wounds from the needle of an aspirator were present, and I learned that the attending physician had removed on two occasions a thick greenish fluid. There existed moderate spasms of the left psoas and efforts to overcome this were attended with pain. Over the scalp was a fading eczema impetiginodes.

The history gives no account of a fall or injury of any kind, simply the eruption of the scalp, which was of several weeks duration. When this began to improve four weeks ago the child became feverish, fretful, and averse to being handled;

one week later the left thigh was flexed on abdomen, and continued so for two weeks, when the muscle began to relax, coincident with which a swelling appeared in left lumbar region. My diagnosis was given unhesitatingly as peri-nephritic abscess, and the prognosis I gave with the same degree of freedom. As it was a case for consultation, the physician in charge proceeded with his treatment.

Imagine my surprise as well as chagrin to find at the next visit, January 6th, a slight irregularity in the appearance of the spinous processes of the lower three lumbar vertebræ, and immense tumefaction, with heat and tenderness of right thigh. The lumbar tumor had disappeared entirely, giving me a better view of the spinal column, and the spasm of the left psoas no longer existed. I changed my diagnosis, and applied a spinal brace immediately, telling the father to see his physician, and ask for me exclusive charge of the case. While I could not get satisfactory fluctuation at any point, and while the circumference was two and a half inches in excess of that of fellow thigh, I felt confident that I had here a residual abscess from carious vertebræ. Cold applications were ordered to the limb. January 10th, no perceptible change in condition of thigh, but the spinous processes seemed more nearly normal. January 15th, thigh hot, painful, and at a point over the internal lateral ligament of the knee fluctuation was distinct. An evaporating lotion, containing muriate of ammonia, acetate of lead and tincture of opium was ordered. January 21st, plentiful pustular eruption over limb like that following the use of croton oil. Lotion discontinued. January 28th, eruption disappearing. Circumference of thigh half an inch less, but at the inner aspect of knee the swelling has become more circumscribed, though there is no tendency to a spontaneous opening. The patient has been taking cod-liver oil with phosphate of lime, and an additional tonic from the beginning of our treatment. The local cellulitis, for such it undoubtedly was, terminated without suppuration, and on February 19th, both thighs and both knees were of one size respectively; in fact, no difference in any respect could be detected by a very close examination. No prominence, or irregularity even, of the spinous processes existed; the boy had been gaining health and strength daily. February 20th, Since last visit he has

been running and jumping without the least inconvenience. Discharged cured. My final conclusions then are, that this was a case of peri-nephritic abscess, followed by cellulitis of the right thigh, and that no caries of the spine ever existed.

These cases are reported at length; and my only apology is, that from an analysis I wished to draw clinical conclusions, wished to be practical rather than theoretical. The three cases already on record, together with my own, should afford a complete history of peri-nephritis, whether it terminate in suppuration or resolution.

Etiology.—While studying the subject in text-books and current literature, I was led to the conclusion that this disease had as its cause, contusion, strain, fatigue, cold, or the debilitating influence of certain low fevers. In one of Dr. Bowditch's cases, no cause either predisposing or exciting could be found; in the other, the boy was probably of a strumous diathesis, and the exciting cause was most likely exposure. In three of the cases under discussion this evening, one was undoubtedly strumous, while two were probably strumous. Six of the nine gave no evidence of such a diathesis.

For exciting causes I have sought most diligently, have asked leading questions, and have conducted rigid cross-examinations. My result: One case following in the wake of a bronchitis; one following an eczema impetiginodes. These two affections have not, as a rule, a very depressing influence on the system, and I fail to see any direct etiological influence. Among other causes, Trousseau[1] in his lecture already referred to, mentions acute pain in neighboring parts as a cause of peri-nephritic abscesses. The diseases above mentioned are not attended with very acute pain. In seven cases I could find no exciting cause whatever.

If sex predisposes, then, from my analysis, the female sex must act as a cause; for six were female and three male. The three cases reported elsewhere occurred in male children. Taking these into account enables us to eliminate sex as a predisposing cause. The age of the youngest child was one and a half years, of the eldest, ten; mean about four and a half. In seven instances the disease was on the right side, in five it was on the left.

[1] Loc. cit., p. 900.

Pathology.—Our unvarying success, at the hospital, in treatment, has prevented me from making any practical observations bearing upon this phase of the subject, other than to record as a rule that inflammation of the peri-nephritic cellulo-adipose tissue results in suppuration. To this rule there have been one or two exceptions. Niemeyer[1] says, in speaking of those cases in which suppuration does not occur, "the loose cellular tissue becomes condensed and indurated, and is converted into a thick fibrous pulp."

Symptomatology.—In typical cases the disease generally begins with a rigor or two, febrile exacerbations more or less severe according to the acuteness of the attack, lancinating pains in lumbar region, loss of appetite and general indisposition. In fact, the invasion does not differ materially from that of other acute inflammatory lesions, unless perhaps the pain be more localized, and if the child be very young, the locality of the pain is not discovered. During the first week the symptoms change very little, except in degree. Constipation, I believe, is always present. Very soon we have preternatural immobility of the spine, a stooping forward with elevation of the shoulders. After a week or ten days, spasm of psoas muscle occurs, the gait becomes characteristic of that so commonly regarded as the second stage of hip-joint disease. The urine is of high specific gravity and is loaded with urates. The tumefaction appears, and the pain becomes excruciating. If an exit be given to the pus, a speedy recovery follows; if this be delayed and the contents of the sac be really pus, it burrows along the cellular tissue, producing an immense abscess, a spontaneous opening is effected and the convalescence is protracted. If, on the other hand, the inflammatory process has not resulted in suppuration, the contents are most likely serum, and resolution is effected.

A brief resumé of the symptoms observed in the preceding cases may render the subject still clearer. In the first, the pain invaded the knee, a day or two subsequently the hip-joint, and almost *ab initio* was very acute. An early incision was not made, and an enormous abscess extending from the costal region to the middle third of the thigh was the consequence. A remarkable feature was the quantity of pus evacuated daily; yet,

[1] *Practical Medicine*, vol. ii., p. 40.

when we remember the extent of pyogenic membrane and the excessive emaciation to which the child had been reduced, this becomes easy of explanation. The severity of the disease in the eighth case, in which delirium and alopecia occurred, surpassed that of any on record. No incision was made and there was no spontaneous opening externally; yet the tumor disappeared and a perfect recovery was attained. These two cases afford an interesting contrast and furnish a striking example of the abundant resources at Nature's command. In the third case the history of the invasion fails to bring out any marked febrile disturbances, and from the condition of the patient two weeks from the inception I would infer an unusual mildness of attack. The pain, however, the contraction of the psoas, and relaxation thereof when the tumefaction appeared, give a train of symptoms, the obscurity of which was dissipated only by the termination in resolution.

The seventh case furnishes the exception to the rule that spasm of the psoas always occurs. The length of time that elapsed in the fourth case between the first sign, lameness, and the lumbar tumor, gives a degree of chronicity unobserved in any except in that of the boy reported by Dr. Bowditch. In that case the abscess seems to have formed in two months' time, and partially emptied itself spontaneously through the bronchi. Thoracentesis was performed two months later. In my case full three months elapsed before a swelling even could be detected. The early jaundice in the fifth case could have resulted either from a temporary functional disarrangement of the liver or from pressure of the kidneys against the gall bladder. The second, sixth and ninth are interesting on account of the age and the correspondingly rapid recovery. To the ninth is attached the additional interest of a cellulitis as a sequel. If I had not dwelt so much on the condition of the psoas I would again revert to it by way of emphasis. Dr. Duffin[1] lays great stress on this point, but he does not speak of the relief afforded when the abscess presents externally.

Concerning complications, there is no need for any extended remarks. The cases presented, with a single exception, have been uncomplicated. The exceptional case was the one with cellulitis as a sequel. One of the lads in Dr. Bowditch's

[1] Med. Times and Gaz., vol. ii., 1870, p. 362.

report lost his life by an intercurrent pulmonary lesion. It would seem that nephritis would frequently result, but in no single instance has such occurred. In a collection of 26 cases in adult life I find eight complicated with renal and two with pulmonary disease. From Dr. Duffin's paper just alluded to, I find that of 26 cases collected by himself, hæmaturia was prominent in 2, pyuria in 5, calculous grit passed per urethram in 1, signs of vesical lesion in two, renal disease without bladder signs in 5, and no urinary disease in 12.

Diagnosis.—This is by far the most important branch of the subject, and a reference merely to the obscurity of the early, and the deception caused by the later symptoms, will be sufficient proof for the statement. All authors recognize the difficulty in diagnosticating the affection at an early stage in the adult, and here we get aid from subjective symptoms. The objective symptoms likewise can be better studied in that the spaces in which they are manifest are larger, and the patients are more tractable.

When one comes to examine a child, frequently by nature and domestic surroundings, cross, with the additional peevishness induced by a fortnight's illness,—then long suffering and forbearance are indispensable qualifications to the physician. The examination may be conducted at a dispensary, where a score of thoughtless babes in the waiting-room are raising their voices in inharmonious concert; it may be in a crowded room of a tenement house, where loose windows allow chilling draughts to transpire. Those physicians who devote much time to charity practice will understand the difficulties to which I refer. To diagnosticate an early peri-nephritis in a young child, I believe, is impossible.

A contusion over the renal region might be followed within twenty-four or forty-eight hours by the ordinary symptoms incident to acute inflammation; and there I see no reason why a diagnosis could not be made. The case reported by Löb[1] bears directly on this point. A boy six years of age was sleigh-riding January 1, 1868; fell striking his left lumbar region against the side of the sleigh. The superficial parts gave evidence of contusion, and on the same day he complained of pain in his loin. On the following day the pain had not

[1] Jahrb. f. Kinderheilkunde. Neue Folge, viii. S. 197.

abated, he walked lame, and febrile reaction was manifest. January 3d, he took to bed, the left side was arched, there was loss of sleep and appetite. January 17th, Dr. Löb first saw the case; and, though no tumor was present, yet from the clear history, the excruciating pain, the characteristic decubitus, and the spasm of the psoas, he had no difficulty in making a diagnosis. Whether the physician who saw the boy during the seventeen days' suffering made a diagnosis, the learned professor does not state. It may be interesting to mention that, from the language of the report, the diagnosis was made before the urine was examined, this being done at a later date.

The points on which I have placed the most reliance are, the acute nature of the attack, pain in the region of the kidney, flexion of the thigh—which in only two of my cases appeared sooner than the second week, the prone position, tenderness on pressure when the child is old enough to give any reliable testimony, the tumefaction, and, finally, the fluctuation. To analyze these symptoms and differentiate from those diseases which simulate very closely the one in question is not always free from difficulty.

In peri-typhlitis the pain and tenderness is chiefly confined to the iliac region; there is pain more or less of a colicky nature, and the affection is generally associated with typlitis. Should the tumor in peri-typhlitis appear in the lumbar region, then a differential diagnosis could not well be made, and practically it would be unimportant, for in that case we would most likely have a peri-nephritic abscess complicating the peri-typhlitic. In hepatic abscess the function of the liver is deranged, the tumor is located within that region and is movable with respiration. The symptoms of acute nephritis are like many of those now under discussion. From the history and the examination of the urine the question can be definitely settled. Renal calculi might mislead one, but the absence of fever, the paroxysmal nature of the affection, and the urinary examination should guard one against error. Idiopathic psoitis in children and aneurism of the abdominal aorta are so rare that I shall devote no time to their consideration. Intra-thoracic lesions can be excluded by a physical examination.

Several of my cases have been diagnosticated as morbus coxarius, and this mistake might seem unpardonable in an orthopædist.

For the benefit of those who are not experts in this branch of the profession, let me say that however easy the differential diagnosis may seem theoretically, it is not always easy practically. I have already alluded to the difficulties attending a thorough examination, and to the unreliability of histories. The points on which I place most dependence are: the position of the limb, approximating toward that which many consider, without due reflection, the exact position for the second stage of hip-joint disease, the duration of this position, the involvment of the psoas alone in the contraction, and the absence of tumefaction or induration about the trochanter, or in the groin. It must be remembered that, as a rule, hip disease is chronic, that when no abscess appears a long time must elapse before the limb assumes the position characteristic of the second stage. A child whose hip is the seat of disease does not walk and run without the sign of a limp, and two weeks subsequently walk with the hand resting on a thigh flexed and rotated outward. Besides, my observation in peri-nephritis is, that little or no rotation outward is ever present. The pains along the thigh in and around the hip and knee-joints may mislead as they did in Case I. Still, I think if one makes a more thorough examination than I did in that instance, and obtains the history free from bias, a correct diagnosis can be made. We are very apt to construct our arguments by building from the conclusion upward; the premises are an afterthought, and it is amazing how easily one can get premises by asking leading questions.

I now come to speak of the difficulty of excluding caries of the vertebræ. In my experience, this is the *pons asinorum*, and after reviewing my cases I am almost prepared to admit the impossibility. You have heard me while reading the reports speak of the irregularity of the spinous processes, the immobility of the column, the sudden paroxysms of pain, causing the child to rush for the mother's lap, or a chair, or a bed. Well, the text-books give these as pathognomonic of caries of the spine. When a mother tells me that very recently the child was in perfect health, walked and ran like other children, I fancy I am getting at the secret finely. I refrain from interrupting, and she talks along, telling me that she has for a long time thought the child was "troubled with worms," that the stomach has been hard and swollen at times, that she has ob-

served moaning and restlessness through the night, that in the morning the little fellow is not as supple as he is later in the day. She has finally given me, though unintentionally, a very good history of caries of the spine in its incipieney. If I can feel assured that the present disease began with rigors and fever, nausea or vomiting even, constipation, loss of appetite, and pain in the side, I can, where the other symptoms point to caries, very easily exclude spinal lesion. The various tests for ascertaining the existence of inflammation in or between the bodies of the vertebræ will sometimes render valuable assistance. I have not found them, however, infallible.

When suppuration follows the peri-nephritis, and the abscess points in the lumbar region, the absence of angular curvature will enable one to exclude caries. To this rule even there is an exception. The case may not be seen until the abscess has appeared, and this may extend across the spinal column, hiding from view the spinous processes. In Case IX. this was the condition of affairs. While the sac was partially filled, and while I had evidence that pus had been removed the preceding day, and that the child had been running around actively four weeks before, I felt sure that no angular deformity existed; but when, at the next visit, I found tumefaction of the right thigh, I examined the spine more carefully, and the thickened tissues of the collapsed walls of the old abscess deceived me, and I felt sure that caries, with deformity, existed.

After the incision, a manual exploration of the cavity will verify the diagnosis. In Löb's case this was done.

Prognosis.—Not one of our cases has terminated fatally. The duration of the disease, from the inception to the perfect recovery, is as follows: two months in 3 cases; three months in 3; five months in 2; six months in 1. One case, reported by Bowditch, recovered in nine weeks; the other died from a pulmonary complication. Löb's case made a complete recovery in seven weeks. The prognosis, then, in primary uncomplicated peri-nephritis, is very favorable.

Treatment.—During the early stages the treatment should be expectant. Counter-irritation, evaporating lotions, and anodynes I believe, are beneficial. Above all, look after the general health. After the abscess has appeared, that tonic which has been most serviceable in my hands has been a preparation

of beef wine and iron, put up by Wyeth, of Philadelphia, and Caswell and Hazard, of this city. When fluctuation is distinct, the indication is to give exit to the pus. For this purpose an aspirator or a bistoury can be used; the former is probably the safer. As regards injections into the cavity, I see no special advantage in this procedure; a little well-guided patience will ensure about as speedy a cure.